

PATENT

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Application No.: 09/432,503
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sequence that encodes a telomerase reverse transcriptase protein, variant, or fragment having telomerase catalytic activity when complexed with a telomerase RNA,

wherein the polynucleotide hybridizes under stringent conditions to a polynucleotide having a sequence complementary to SEQ ID NO:1, and

wherein the expression of the hTERT protein from the recombinant polynucleotide in the cell increases the proliferative capacity of the cell.

42. The method of claim 41, wherein the cell is a human cell.

43. The method of claim 41, further comprising selecting cells that express an increased level of telomerase catalytic activity.

44. The method claim 43, wherein the cell is a human cell.

45. The method of claim 41, wherein the polynucleotide encodes a full-length, naturally occurring telomerase reverse transcriptase.

46. The method of claim 45, wherein the cell is a human cell.

47. The method of claim 46, further comprising selecting cells that express an increased level of telomerase catalytic activity.

48. The method of claim 41, wherein the polynucleotide encodes a telomerase reverse transcriptase having the amino acid sequence of SEQ ID NO:2.

49. The method of claim 48, wherein the cell is a human cell.

50. The method of claim 48, further comprising selecting cells that express an increased level of telomerase catalytic activity.

51. The method claim 50, wherein the cell is a human cell.